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UPDATE OF THE MONTANA COAL MARKET TO THE YEAR 2000
IMPACT OF SEVERANCE TAX ADJUSTMENT
AND OTHER ISSUES RELATED TO COAL DEMAND.

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by

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Missoula, Montana 59812

Prepared for

The Montana Legislative Council
and Coal Tax Oversight Subcommittee
of the Montana Legislature

July 18, 1986

Revised August 8, 1986

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EXECUTIVE SUMMARY

The following is a set of conclusions based on the Duffield-Silverman report of January 1985 and on the update that follows. The major conclusions related to the continuing effort to define the Montana market for Powder River Basin coal in the near to mid-term future are as follows:

1) The Montana coal market for the period 1971-1985 has been relatively stable due to our locational advantage to Minnesota, Wisconsin, and Michigan, and by wire to the Pacific Northwest. In the period 1985-1995 this advantage should continue to provide Montana producers with a slowly expanding market if they increase their efficiency and are willing to meet the price competition of Wyoming mines with large overcapacities of low to medium BTU coal.

2) The large relative growth in the Wyoming coal market for the past 15 years will slow considerably over the next 10 years. Relatively few new utility contracts for plants now scheduled to come on-line between 1985 and 1995 are yet unsigned. However, the Wyoming market, buffered by:

a) its locational advantage to the much larger south-central electric market

b) a restablization of oil prices in the range of $15.00-$20.00 a barrel,

c) a potential expansion of the low-sulfur coal market due to acid rain legislation by the federal government, and

d) a willingness to accept short-term pricing at variable cost levels for coal in order to keep mining operations active,

all suggest that the Wyoming share of the 19-state Northern Great Plains market will continue to exceed that of Montana's.

3) Cost differentials between Montana and Wyoming related to locational advantage (transportation), mining costs, and air pollution regulations remain on the order of $5.00-$15.00/ton. Cost differentials due to Montana and

Wyoming coal severance taxes (Montana's effective 21% before the HB607 reduction, and Wyoming's effective 11%) are more on the order of approximately $1.00/ton and have an insignificant total market impact at this time. In a few specific burn sites, the severance tax differential could make the contract difference. Reliability of supply, experience with burning a given coal, continuity of coal quality on a monthly basis, and in some markets minor changes in sulfur content relative to the BTU value of the coal, are all generally much more important than a modest price differential created by the Montana-Wyoming coal severance tax rates.

4) In all likelihood most of the existing contracts with Montana producers that will expire in the 1993-1995 time period will be renewed, even if tax rates were reestablished at the pre-HB607 levels. As a matter of fact, one major contract, assumed to be Western Energy with Northern States Power, has already been extended for five years after the contract expiration date in the early '90s, and will deliver up to 33 million additional tons of Rosebud Mine coal to the Northern States Power system.

5) Based on industry sources and discussions, along with known contracts, the Montana coal industry will continue a steady growth rate after recovery from the downward economic turn of the past year and a half. This downward turn together with excess hydro power and low cost oil and gas, has reduced coal demand from the Powder River Basin. As the economy recovers and the electric utility market returns to projected growth rates, we will see coal production in Montana reach 42 million tons per year (mtpy) in 1990 and 46-48 mtpy in 1995. Our long-term forecasts for Montana coal production continues to be for substantial growth, to between 48-85 mtpy by the year 2000, depending upon the growth rate of electrical consumption in the Northern Great Plains market area. Our most likely forecast is that by the year 2000 Montana

coal production will reach levels of between 60-65 mtpy, adding approximately 30 million tons to Montana's current production level.

Although the federal congress is once again dealing with the acid rain issue, and could potentially pass a 10 mtpy annual SO_2 reduction requirement to be in place by the early 1990s, that legislation will only have a minor impact on Montana production. We would have to compete strenuously with Wyoming mines in order to capture any windfall from acid rain legislation. On the other hand, SO_2 performance standards passed in Wisconsin during the past year have forced Wisconsin utilities to look closely at low sulfur compliance coal in the Powder River Basin that can be produced from low-cost Wyoming operations. These coals could replace some Montana production when contracts expire in the early 1990s, and compete effectively for any new plant contracts in the future.

6) We believe that continuation of the severance tax reduction in all probability will not generate sufficient increased production to offset tax revenue losses on the new production that will occur. Even with the 1985 experience of one million dollars in severance tax reduction requests, equivalent to approximately one million tons of additional coal produced under certain contracts, it is not possible at this time to know for certain if any of that addition would have been forthcoming without the tax reduction in HB607.

7) In the long-term, however, we forecast that revenue losses for new production will rise from $10 million per year in 1990 to $35 million per year in the year 2000, with a 50% reduction in the Montana severance tax. This same tax reduction on all Montana coal will amount to a loss for the state of $58 million per year in 1990 and $83 million per year in the year 2000. Our analysis shows that we cannot increase coal production in the next 15 years by

an amount that would compensate for the reduced tax revenue flow to the state caused by a significant reduction in the severance tax.

These conclusions, based in part on our January 1985 study, and here carried forward over the following 18 months, provide in our judgment the most comprehensive outlook on near and mid-term coal markets for Montana producers. The discussion which follows provides the reader with specific information and analysis to support our updated conclusions above.

INTRODUCTION

The study here presented is an update of the Montana coal market report to the year 2000 prepared by Duffield, Silverman, and Tubbs for the Montana Department of Commerce dated January 1, 1985. An attempt has been made to complete the data base for the Powder River Basin coal market for the past 18 months, that is the period January 1985 to June 1986. In addition, an attempt has been made to reconsider the pertinent issues discussed in the coal market report of 1985, and to seek further update in the area of coal mine planning and market demand in the region where Powder River Basin coals can compete in the utility market. The update is a study of changes in utility coal demand, coal production capability, pricing, and mining costs within the Powder River Basin and its market region.

No attempt has been made to assess the export or industrial markets. The former of which remains essentially inactive, and will continue to be so in the foreseeable future; and the latter which has shown a small but steady growth until the period of rapidly declining oil prices at the beginning of 1986.

The synthetic fuels market will not be considered, as that program, funded by federal grants and price underwriting, is essentially dormant on the American scene today. We will therefore, only mention briefly in passing that the synfuels, industrial, and export coal markets for the Powder River Basin states of Montana and Wyoming are following our 1982 forecast and will not influence coal tax revenues in any important way.

The last 18 months in the Powder River Basin coal markets can be characterized by: 1) a sluggish economy, 2) a precipitous drop in oil and gas prices, and increased availability of these two alternative fuels, 3) continued progress in energy conservation, and 4) a continuing and very large

overcapacity of supply in Powder River Basin mines. These major elements in the U.S. and western coal markets have spawned a series of reactions that have substantially effected Montana-Wyoming coal mining.

Declining oil and gas prices and the huge coal capacity in the Powder River Basin has provided utilities with the ability to take minimum supply on contracts, and in some case pay off contracts, in order to enter the spot market for their incremental needs or to find new sources at much more favorable delivered prices. The spot market has therefore been the area of rapid growth in national and western marketing. In addition, the sluggish U.S. economy translated into a sluggish coal economy and renewed competition with oil and gas has developed a national shake out of coal companies through low sales prices, restructuring, and reorganization of management. The outcome of this activity of the last 18 months is the very pronounced and vigorous movement toward low-cost producers in the coal industry who will challenge for increasing market shares. At the same time that shake out and reorganization are going on, mining is becoming more efficient, particularly in the west where the ratio of surface to underground mining is going up and the efficiency of mining at individual areal strip mines also improving.

Acid rain legislation, which was unexpectedly voted out of a U.S. House subcommittee in 1986, could come to the House and Senate floor before the end of this year. The legislation provides for a national reduction of 10 million tons per year (mtpy) of SO_2, as well as a 4 mtpy reduction in NO_x. Should this legislation become law with the proviso that a variety of compliance strategies can be used, including switching to low sulfur coal, a noticeable effect on coal production in the Powder River Basin should be forthcoming with most of the benefit going to the Wyoming low-sulfur, high BTU coal mines on the basis of price competition.

The nuclear industry continues its cancelation, and conversion to coal trend, for uncompleted plants; and no new starts have been planned beyond the schedule of completion during the decades of the ´80s and early ´90s. The additional plants scheduled to come on line over the next ten years will add substantial capacity to electric generation throughout the country and will further negate the need for new coal-fired plants if the economy stays at its predicted slow rate of growth.

Lastly, it appears that competitive unit-train pricing in the Powder River Basin between Chicago and Northwestern and Burlington Northern has established high-volume, long distance coal rates at between 1.5 and 1.7 cents/ton-mile. The recent purchase by C&NW of shared BN track in the Powder River Basin has further increased the competitive dimension of coal shipment from Wyoming and will be an added factor in stabilizing unit train coal rates over the next few years. Although recent studies seem to indicate that coal is providing an inordinately large share of returns on investment in the rail transport industry, as a result of pricing coal higher than other commodities shipped by rail relative to their cost, the ICC is adamant in its contention that the 1980 Staggers Act is working and should continue to work in the present form to establish competitive rates. With respect to Wyoming and Montana unit train coal shipments, we appear to be close to establishing competitive rates, although many would argue that the rates themselves are higher than they should be for moving coal long distances cross-country.

SHORT-TERM EXPECTATIONS

Given the setting above, we believe that the following comments fairly well characterize the important contributors to coal marketing changes in the Powder River Basin during the next few years. First, oil prices may stabilize in the $15.00-$20.00/barrel area during 1987 or 1988, and hold that price

level into the 1990s. This will reduce the external pressure on coal pricing that rapidly falling oil prices provided in some parts of the country, and made oil look attractive in the near term as a substitute for coal. We do not believe that long-term oil pricing of $10/barrel, which is the price necessary to compete with coal in the utility market, can be stabilized in the world oil situation. Secondly, low natural gas prices, again competitive with coal in the south-central utility market, will rise as oil prices rebound in the late 1980s. Lastly, excess capacity of the Powder River Basin will gradually decline from its current levels of about 80 mtpy to about 40 mtpy by 1995. With few new mines opening in the next 10 years, a gradual increase in demand will soak up some, but not all, of the excess capacity keeping coal prices low and competition extremely active in the Powder River Basin.

Excess hydropower imported from Canada can have a local effect, as well as alter the Northwest-California utility link. This excess Canadian capacity can provide electricity, at least for a short time, for the expected growth in the Northwest utility market. In its 20-year plan (1986-2006), the Northwest Planning Council, together with the Bonneville Power Administration, is considering coal the resource of lowest priority and highest cost (4.5 ¢/kwhr) over the next 20 years. As the regions marginal resource, coal is capable of expanding only if all other resources do not meet or exceed their expected levels. Those other resources, of course, include conservation and Canadian hydropower.

Under a high growth base load scenario, about 7000 megawatts of coal-fired generation would be added to the Northwest region in the next 20 years. A more likely medium-high to medium-low growth projection would only require about 1800 megawatts of coal-fired addition, whereas no coal-fired facilities would be required under the medium-low to low growth scenarios provided by the

Planning Council. These projections would require at most from 6-25 mtpy of additional coal production, particularly from the Powder River Basin and Utah. However, the probability of loads between the high and medium-high scenarios is only 27%, between the medium-high and medium-low scenario is 42%, and between the medium-low to low scenario is 31%. There is, therefore, only about one chance in two that the Bonneville service area will demand a substantial increase in Powder River Basin coal for the next 20 years. That probability is low because the high to medium-high growth rates of between 2.0% and 3.0% a year are well beyond the expected 1.0%-1.5% increase of most recent projections for the region.

Our earlier projections (1982, 1985) of coal production for the Powder River Basin market area appears to be right on track. We suggested that potential new Montana contracts to 1995, that related to power plants, would be in the range of 4-11 mtpy and is an upper limit predicated on the current NERC "Sum of Utilities" forecast in our market area. The traditional market area for Montana, including Minnesota and part of Wisconsin, has not changed. Wyoming inroads into both the Wisconsin and Minnesota market will be discussed below and should be taken seriously in terms of long-term contracting, although there is also reason to believe that the Wisconsin market may stay source diversified even with a Wyoming delivered price advantage. Wyoming's traditional growth in market area to the south-central and gulf coast region of the United States should continue, but at a much slower rate than that of the '70s and early '80s, offering about 30 mtpy of new uncontracted potential.

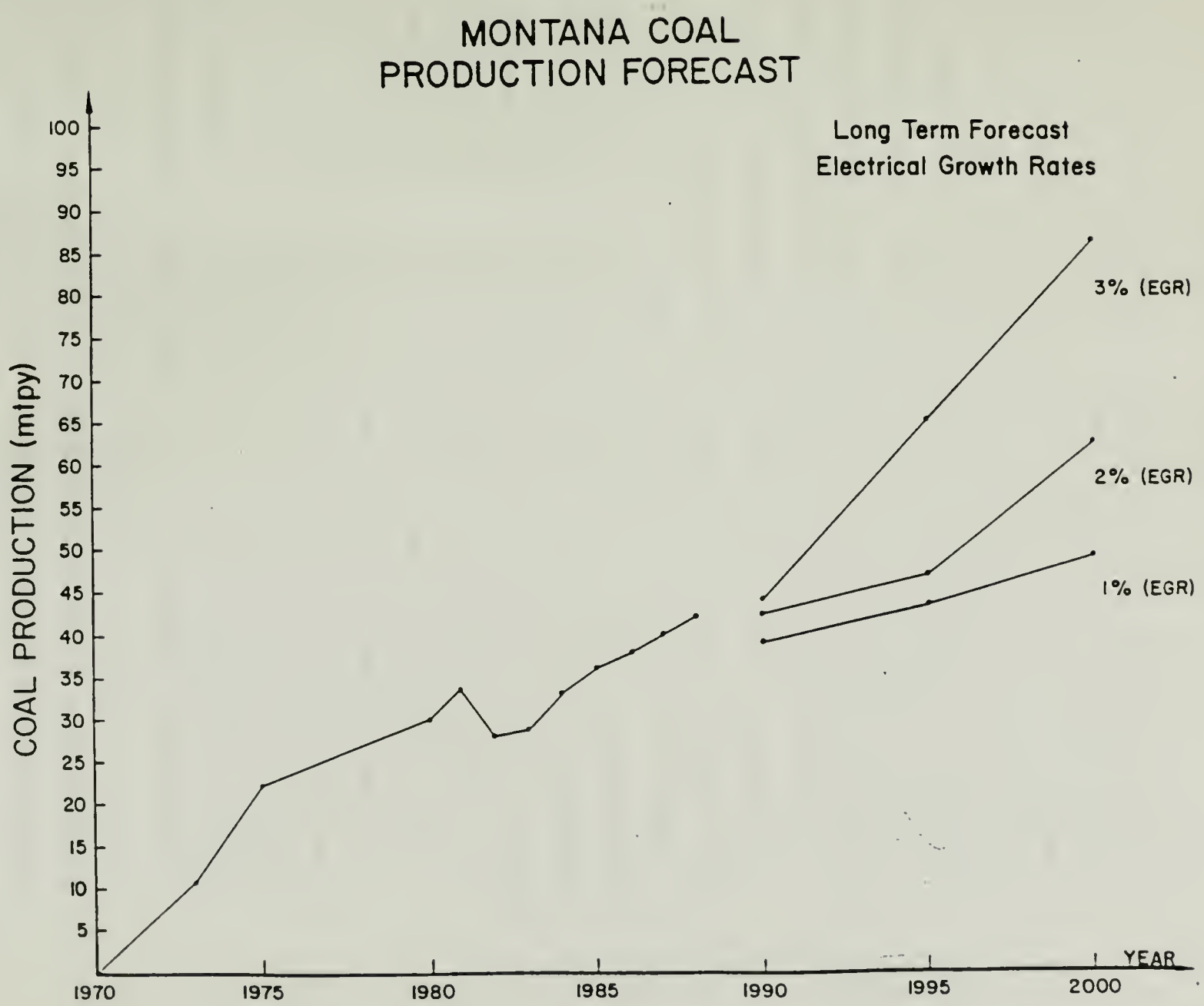
Low sulfur, low BTU coal will continue to be a glut on the market for at least the next 10 years, as over-capacity will continue beyond 1995, thereby maintaining a highly competitive structure in the Wyoming part of the Powder River Basin. That price competition will exert price pressure on Montana producers and the continuing advantage of Wyoming over Montana in most of the

19-state Powder River Basin spacial market area identified in the 1985 Duffield, et al. report.

Montana's competitiveness can only be sustained if Montana's Colstrip area (medium BTU) coal producers are willing to settle for modest but reasonable rates of return in their coal mining enterprise. The $1.00/ton coal severance tax differential between Montana and Wyoming would in a few cases probably help Montana producers, but in most cases is not enough to provide a competitive Montana position in the market where Wyoming coal is sold. What's more, it is the very low break-even prices on larger mining operations that has provided Wyoming an important sales opportunity even in part of the traditional Montana market. A $5.00-$7.00/ton FOB bid recently by Wyoming producers for new contracts undercuts recent Montana bidding in the $9.50-$12.50 range and cannot be made competitive even with complete severance tax elimination. Either differential rail rates or modest reduction of profit levels are needed to maintain the Montana market in some places where cheap, low to medium BTU Wyoming coal can also compete for long-term contracts. Selling higher BTU coal (Decker type) enables Montana producers to compete very successfully in markets as far away as Chicago, Detroit, and Houston and make handsome profits as well. For medium BTU Colstrip coal it appears that Wyoming producers are $3.00-$5.00/ton lower at the mine and producing at a 25%-100% spread over Montana in the mine-mouth cost of BTUs.

Our long-term Montana coal forecast appears to be pretty much on track, and as reproduced on the next page (Figure S-1), is based on the electric energy growth rate anticipated to the year 2000. We believe Montana's production will rise slowly but steadily to reach a tonnage of between 45-65 mtpy by the year 2000. It is highly unlikely that the 3% energy growth rate curve will be reached and a 87 mtpy production projection for the year 2000 does not seem reasonable at this time.

Figure S-1


MONTANA COAL
PRODUCTION FORECAST
Long Term Forecast
Electrical Growth Rates
3% (EGR)
2% (EGR)
1% (EGR)
COAL PRODUCTION (mtpy)
100
95
90
85
80
75
70
65
60
55
50
45
40
35
30
25
20
15
10
5
YEAR
1970
1975
1980
1985
1990
1995
2000

MONTANA-WYOMING COAL MINING COSTS

One difficulty in adequately presenting our 1985 coal market and severance tax study to the Department of Commerce and Montana Legislature was the unavailability of specific mining costs related to properties in the Powder River Basin. Since that time, publicly presented mine data has become available, along with what would appear to be reasonable estimates by engineering consultants versed in these matters. In addition, coal contract pricing at mine-mouth has also become available in some cases and provided us with confirmation of the 1984 estimates we made based on FERC reported delivered prices and our own breakdown between transportation tariffs and mine price.

The cost estimates we provided in 1985 were very close to specific examples reported in a recent public trial (February 1986) in Forsyth, Montana (Western Energy vs. Genie Land Co. and the State of Montana). Western Energy testified that average mining costs of part of the Rosebud Mine with 80-85 ft of overburden is between $8.75-$9.30/ton; with overburden thicknesses increased to between 90-100 ft mining costs increased to between $9.15-$9.70/ton. At the same time contract prices with Colstrip 1 and 2 are $11.53/ton; with Corette, $12.10/ton; and with Great Lakes Coal and Dock Company, agent for Rosebud Coal with small users in the Minnesota-Wisconsin area, $10.69/ton. In parts of the mine, especially those with extremely high overburden conditions, Western Energy states that mining costs run as much as $10.25/ton. At least in the Rosebud Mine, depending upon where mining proceeds, profit margins for Western Energy are in the range of $2.00-$3.00/ton.

The most sensitive aspect of mining costs are "direct operating costs," which at Rosebud are in the range of $3.00/ton for average overburden areas; Montana plus Federal production taxes require another $3.00/ton; Federal royalties, $1.22/ton; reclamation costs reported by the company are 85 cents/

ton, including final high wall reclamation when mining is completed at the site, while overhead and other costs require 63 cents/ton. Outside of the unusually high reclamation costs, which translates into $34,000 an acre in at the Rosebud Mine, the other costs appear reasonable. Exact reclamation costs are difficult to calculate inasmuch as each company provides its own bookkeeping system for that portion of the mining enterprise that is considered production versus that considered reclamation. One might, however, suggest costs of 40-50 cents/ton as the upper limit of current Rosebud Mine activity (as reported to State Lands in one version of a reclamation plan a few years ago), and therefore provide 35-40 cents/ton additional profit to the operation at Colstrip. There is no reason to think that other Colstrip contracts are priced significantly different from the Colstrip 1 & 2 and Corette, and therefore provide us a baseline of approximately $5.00-$6.00/ton above new contracts in the Wyoming portion of the Powder River Basin.

Other estimates of Powder River Basin coal production costs vary only slightly from those presented above. At least one consulting firm has estimated that within Montana only the Rosebud and West Decker mines can afford sale prices less than $9.00/ton for a 10% DCFROR. All other Montana mines are higher than this, or in the range of 50 cents/MMBTU for a 10% DCFROR. Looking at all mines in the Powder River Basin, the range is from $4.00/ton at 10% DCFROR to $15.00/ton, or 25-80 cents/MMBTU FOB mine price. The leading mines with cheap coal are all in Wyoming and include the Rawhide Mine of Exxon, the Eagle Butte Mine of AMAX and Arco's Black Thunder Mine. The most expensive are the Decker, Spring Creek, and Absaloka Mines of Montana, and Big Horn (Wyoming) owned by Kiewit/NERCO, NERCO, Westmoreland Resources, and Kiewit respectively. The higher BTU, low-sulfur, low-ash coals in the Powder River Basin of Wyoming provide serious competition for Montana suppliers where rail distances to the consumer are not greatly different.

POWDER RIVER BASIN PRICES

Within the last year and a half new contract bids and spot market prices have ranged as follows: for low BTU (8300 BTU) Powder River coal, $4.75-$5.25/ton FOB; for medium BTU coals (approximately 8600 BTU), $5.00-$7.00/ton; and for high BTU coals (9000 BTU and above), $10.00-$15.00/ton. For coals as a whole in the Powder River Basin the prices have ranged from 30 cents/MMBTU to 90 cents/MMBTU, depending upon the mine and BTU content. The range has been from 30 cents/MMBTU to 40 cents/MMBTU for low to medium BTU coals in the basin.

A number of supply-demand conditions are extant throughout the Powder River Basin. It is clear that new pricing is at or near break-even costs, depending upon the mine, for most of the Powder River Basin mines in Wyoming. Utilities are taking minimum volumes on long-term contracts and buying their additional needs on the spot market. The Powder River Basin coal is competitive with Gulf Coast lignites given the differential BTU, and transportation rates; and lastly, low oil and gas prices, forecast to rise faster than coal prices in the future, has had a dampening effect on coal sales in the last 18 months.

It will be very useful for our purposes to compare some coal delivery prices for producers from Montana and Wyoming shipping to the same utility power plant. As of December 1984, the following comparisons can be made: Wisconsin Power and Light Columbia plant bought coal from Western Energy's Rosebud Mine and AMAX's Eagle Butte mine in Wyoming; delivered costs from Rosebud were $1.71/MMBTU and from Eagle Butte, $1.72/MMBTU; Houston Power and Light Parish, Texas, plant purchased coal from NERCO's Spring Creek Mine in Montana and Exxon's Caballo Mine and Kerr McGee's Jacobs Ranch in Wyoming. Montana's Spring Creek Mine delivered coal at $2.01/MMBTU, same price as Kerr

McGee's Jacobs Ranch Mine operation; however, Exxon's Caballo Mine delivered at $1.49/MMBTU. The third example is the Lower Colorado River Authority Seymour-Fayette #2 plant, which received coal from Kiewit's Decker Mine and Arco's Black Thunder and Coal Creek mines in Wyoming. Decker delivered at $2.94/MMBTU whereas Arco's Coal Creek delivered at $2.34/MMBTU and Black Thunder at $2.17/MMBTU. Wyoming producers could do considerably better than Montana moving to the south and southeast, whereas in Wisconsin, Wyoming and Montana producers delivered at the same price.

During 1985, however, Wisconsin Power and Light's Columbia Plant began taking large tonnages from the Black Thunder Mine of Arco, along with that from Colstrip, Montana. On a delivered BTU basis the prices were quite comparable; however, Black Thunder is considerably lower in sulfur and ash content and, therefore, provided a low sulfur premium for Wisconsin Power and Light at no extra cost. Given the stringent air polution control requirements that have gone into effect in Wisconsin during this year, that no-cost low-sulfur premium is of major importance to Wisconsin Power and Light.

During the spring of 1985 the Lower Colorado River Authority declined to take any more Decker coal for its Seymour-Fayette Plant. Deliveries in the early part of the year from Decker averaged $2.95/MMBTU, whereas coal produced by Arco's Black Thunder and Coal Creek Mine in Wyoming averaged $2.00/MMBTU delivered; and Exxon's deliveries from their Caballo Mine averaged $1.60/MMBTU. Delivered prices from Caballo have increased from $1.49, whereas Arco and Decker's delivered prices have stayed relatively stable. On the assumption that Caballo is selling coal at approximately $8.00/ton and is delivering to the Seymour-Fayette Plant at $27.00/ton, the utility transportation costs are about $19.00/ton. Decker, on the other hand, was delivering coal to Seymour-Fayette at a total cost of approximately $55.00/ton. Assuming a $25.00/ton transportation cost, then FOB mine price for Decker coal under

this former contract was approximately $30.00/ton. Black Thunder coals are only slightly lower than Decker in BTU value, and have comparable sulfur and ash content. Exxon's Caballo coals are low sulfur, relatively low ash, and low BTU; but the price differential between Wyoming and Montana is so severe that the cancelation of the Decker contract, and with it nearly 2 mtpy of coal sales, was not an unexpected outcome (see Appendix A). At a $30.00/ton FOB mine price Decker's profits, based on best engineering guess, was approximate $15.00-$20.00/ton, while their break-even costs are somewhere in the neighborhood of $8.00-$10.00/ton. There can be little surprise that Lower Colorado River Authority balked at paying more than $15.00/ton over the market for coal deliveries to its Seymour-Fayette Plant.

Houston Power and Light's Parish, Texas, plant is an interesting example of market forces providing astonishing competition on a month by month delivered cost basis from NERCO's Spring Creek Mine, Kerr McGee's Jacobs Ranch and Exxon's Caballo mines. Delivered price per MMBTU is precisely the same for each supplier for every month of the 1985 year--high BTU, very low sulfur, and very low ash Spring Creek coal is equivalent in this market to relatively low sulfur, low BTU, relatively high ash Jacobs Ranch and Caballo coal. Higher value Montana coal has further to travel and prices out equal to inferior coals from Wyoming.

Some other interesting 1985 comparisons are in order here. For instance, Westmoreland's Absaloka Mine sent some coal in the middle and end of 1985 to Dairyland Power Coops Alma-Madgett Plant. Montana coal averaged about $1.76/MMBTU delivered. AMAX's Belle Ayr Mine in the Gillette area sent substantial quantities of coal to the same power plant at prices that are very close to $1.99/MMBTU. Montana shipped medium BTU, relatively high sulfur and ash coal, and Wyoming shipped low BTU, very low sulfur and low ash coal. Montana's advantage on a BTU basis was about 20 cents/MMBTU, but the lower sulfur

Wyoming coal will probably continue to dominate the Dairyland market because of air pollution regulations.

At Northern States Power, the Riverside plant received coal from both Western Energy's Rosebud Mine and Westmoreland's Absaloka deposit. The 1985 FERC record showed that Rosebud deliveries arrived at approximately 10 cents/MMBTU cheaper than those from Absaloka for the same BTU content. For the 1985 deliveries it appears that Absaloka was slightly lower than Rosebud in average sulfur content. Ash content of the two coals are about equal. The same relationship is true of coal received from the Rosebud and Absaloka Mines at the Sherburne County generator of Northern States Power during 1985.

Another interesting comparison is the coal supply for Northern States Power King plant in Minnesota. King received coal during 1985 from Western Energy's Rosebud Mine, Westmoreland's Absaloka Mine and near the end of 1985 from the newly opened Rochelle Mine in Wyoming. In each case a substantial monthly tonnage was shipped. The new Wyoming Rochelle Mine was delivered on the average of 15 cents/MMBTU below Westmoreland's Absaloka Mine and 5 cents/MMBTU below Rosebud. With comparable BTU values for the three coals, the lower sulfur and ash content, as well as pricing of the coal, has brought Wyoming into the traditional Montana market. This 10 cents/MMBTU average difference on delivered price, even over the long-term, may not be the deciding factor in coal shift by Northern States between Montana and Wyoming mines. However, coal severance tax reduction in the King Plant case helps Montana hold the contract.

During the discussion of HB607 by the Montana Legislature in 1985, a major concern centered around the ability to capture one of the very few new coal contracts that would be available over the next 10 years for Montana coal producers. The proponents of HB607 argued that reduction of coal severance

tax would help assure Montana capture of the Sherco #3 contract, while the Duffield-Silverman report suggested that the least cost alternative of coal supply for Northern States Power for Sherco #3 was a Montana supplier pre-tax reduction, though with little cushion in price advantage (about $1.00/ton). Upon the passage of HB607 there was considerable comment that this will now "guarantee" that Montana receive the Sherco contract. Northern States strategy, however, has been a more sophisticated approach to buying coal for its multiple generators in the Minneapolis area. Given the condition of vast overcapacity in the coal fields, the softness of the coal market, which promises to remain that way at least for the next few years, and rapidly falling oil prices, Northern States Power decided on a strategy of buying a considerable amount of spot market coal for its total needs.

Western Energy announced that last December it signed a five-year extension of one its major contracts, which will permit it to deliver up to 33 million tons of coal over a five-year period. Although unannounced by name, our assumption is that this extension is with Northern States Power, and would raise Rosebud coal deliveries at maximum from slightly over 4 mtpy to Northern States Power to about 6 mtpy. The additional coal will be used in the system, at least in part for Sherco generation. Rather than signing the usual 20-year contract for 2.5 mtpy the company has played low spot market pricing and short-term extension as a way of reducing the total generating costs in its system. This strategy in fact may provide Montana with part of the Sherco contract somewhere out in the period 1992-1997, and is another example of the aggressive cost minimizing that utilities employ when contracting coal. Adherence to that cost-minimizing strategy strongly supports the case we made in January 1985 that one can assess the probability of both contract renewal and new contract agreements on the basis of providing lowest delivered cost/ MMBTU of energy with select special cases for high BTU, and very low sulfur

coals, in select markets. The Montana market then appears to be performing as we suggested in 1985, with the added caveat that low price, spot market coal and continuing overcapacity will dominate the structure the Powder River Basin coal sales for the next 10 years.

Wyoming Powder River Basin Coal Pricing

Within the Wyoming part of the Powder River Basin there again exists considerable competition in coal contracting and delivered coal prices. A couple of examples will suffice to make the point. Oklahoma Gas and Electric's Muskogee Plant receives coal from both Arco's Black Thunder Mine and Mobil's Rojo Caballo Mine. The Black Thunder coals are high BTU, very low sulfur and low ash; Caballo's are low BTU, low sulfur, and low ash coals. The BTU differential of about 600 BTU/lb. translates into a delivered cost differential of 15 cents/MMBTU between the lower cost Rojo Caballo coals to the higher cost Black Thunder coals.

Again, Omaha Public Power receives coal at their North Omaha Plant from Exxon's Rawhide Mine and Trident Coal Company's Buckskin Mine. In this case Rawhide ships low BTU, low sulfur, moderate ash coals, whereas the Buckskin Mine ships low BTU, high sulfur, high ash coals. In this case Buckskin coals are about $13.20/ton delivered, whereas Rawhide coals arrive at Omaha at about $21.20/ton delivered. Apparently a 50 cent/MMBTU sulfur premium is paid by Omaha Public Power. Both these examples from the 1985 deliveries show that BTU and sulfur content play an important role in pricing and purchasing of coal within the Powder River Basin. Given the strategies for reducing SO_2 emissions nationally, these particular concerns will become more prominent over the next 5-10 years.

DEMAND FOR POWDER RIVER BASIN COAL

The Duffield-Silverman study of 1985 we believe is still very much on track in projecting growth of coal demand in the Powder River Basin. That study suggests that the amount of coal Montana will produce over the next 10-15 years is highly dependent upon electric utility growth rates. Using a base price of $9.50 FOB for Montana coal and varying the Wyoming FOB price between $6.00-$7.70/ton, and assuming our energy growth forecast of between 1%-2% a year, we model Montana production to be 41.5 million tons in 1990, 46 million tons in 1995, and approximately 63 million tons in the year 2000. Substantially higher energy growth rates, which appear to be unlikely from most of the informed forecasts that are being made today, might bring Montana production as high as 86 million tons by the year 2000. This forecast is reproduced as Table 17 from the 1985 Duffield-Silverman report.

In addition, one caveat is necessary. Should Wyoming coals contract over the long term at prices much below $5.00/ton, it would certainly have some effect on Montana's coal forecast because our traditional market might be further breached by such cut-rate pricing. However, as oil prices rise once again, and overcapacity in the Wyoming fields declines and economic activity picks up in the late 1980s and 1990s, we believe our forecast is the most reasonable for the Montana market.

During this study we have not had time to develop the full case for the Wyoming market on a mine by mine basis. In 1984 the Powder River Basin produced 142 million tons, projected to rise to 150 million tons for 1985. The 1984 distribution of production was approximately 106 million tons from the Gillette area, 18 million tons from the Colstrip-Ashland area, 16 million tons from the Sheridan Basin, and 3 million tons from Thunder Basin. Looking at a market forecast based on utility plants coal-fired generation and including the essential elements of electric utility growth, price availability,

Table 17

Montana Coal Production
Forecast (million tons per year)

Year:		1990			1995			2000		
Electric Growth Rate:		1%	2%	3%	1%	2%	3%	1%	2%	3%
A. Wyoming FOB Price $6										
Montana FOB ($/ton)										
10.50		36.4	38.4	41.3	38.0	44.2	53.0	44.1	51.0	59.9
9.50	BASE	38.1	41.5	42.9	41.9	46.2	64.6	48.3	62.9	85.2
8.50		38.9	42.5	44.2	42.8	47.2	72.2	48.3	68.0	96.8
7.50		42.7	44.7	44.7	45.4	47.2	72.2	48.3	68.0	100.1
6.50		42.7	44.9	45.9	45.6	49.1	76.9	48.7	72.2	118.1
B. Wyoming FOB Price $7.70										
Montana FOB										
10.50		37.9	40.8	42.0	41.3	45.3	64.6	48.3	62.9	81.2
9.50	BASE	38.6	41.8	43.3	42.5	46.3	64.6	48.3	62.9	85.4
8.50		38.9	42.5	44.2	42.8	47.2	73.0	48.4	68.7	98.4
7.50		42.7	45.6	46.0	46.0	50.2	80.8	49.8	75.8	125.0
6.50		42.7	45.8	47.4	46.6	54.4	94.7	50.8	89.8	140.8

alternate energy sources, available imported electricity, short-term commitments to co-generation projections and flat industrial, metalurgical, and export coal forecasts, at least one consulting engineering firm has projected a median growth rate of 1.8% a year for the Powder River Basin as a whole. That forecast would suggest that the total Powder River Basin will produce 158 million tons by 1990 and 192 million tons by 1995. With Montana's contribution previously suggested to be 42 mtpy in 1990 at a 2% growth rate, the Wyoming portion of the basin should produce 116 million tons by 1990; with a 46 million ton Montana production by 1995, the Wyoming portion of the basin might produce as much as 146 million tons by that date.

That growth of an additional 40 million tons of coal between 1985 and 1995 for the entire Powder River Basin is based on the assumption of a 52 mtpy contract potential by the year 1995 for the Powder River Basin. That potential is divided between approximately 31 million tons of new coal potential and 21 million tons of contract renewal. New sales opportunities appear to encompass nine of the 19-state market region for Powder River Basin coals as defined by Duffield and Silverman in 1985. The estimate of about 30 million tons of new coal-fired demand is the amount of uncontracted tonnage for new plants that currently exist within the market area states.

A substantial portion of the sales opportunities for Montana involve contract renewal, as Sherco #3 and possibly Wisconsin Coal #2 of N.S.P. appear to be the only new plants for which Montana coal producers can effectively bid. The Montana total tonnage up for renewal in Minnesota and Wisconsin is approximately 27% of the total sales opportunities for the region in the 1985-1995 period. The above forecast for the next 10 years is very different than the market growth rates of the '70s, in which Powder River Basin coal grew at 20%-25% a year. During that period of expansive growth, the Montana coal

producers essentially captured only 10% of the region's market because the most rapid expansion of the market was to the south and southeast, where Wyoming producers had both a transportation and break-even coal price advantage over the higher cost Montana mines. The '80s and '90s will look significantly different. As growth slows to between 1%-2% a year, mining overcapacity, especially in Wyoming, will be the dominant factor in coal pricing for the next 10 years in the Powder River Basin.

Production Overcapacity in the Powder River Basin

To understand the impact of this overcapacity for the long-term future of coal in Montana consider the following: the 1984 production capacity in the Powder River Basin was 222 mtpy. In 1985 Peabody's Rochelle Mine came on-line and provided Wyoming with its first contract to Northern States Power. In 1986 the Antelope Mine (owned by NERCO) also came on-line with a 3 mtpy capacity. These additions lifted total capacity in 1986 to 227 mtpy, which is assumed will hold at least to the year 1995, as additions in the Powder River Basin before that date are not expected.

With an approximate 2% growth rate per year, the overcapacity in the Powder River Basin by 1990 is estimated to fall to 69 mtpy and by 1995 to 35 mtpy. Ten years from now there will be a continuing overcapacity in the Powder River Basin essentially equivalent to the total new sales opportunities for the period 1985-1995. This overhang on the market is sure to keep prices competitive, Wyoming producers in a highly efficient, low-cost strategy for marketing coal, and will be a continuing pressure upon Montana producers to meet competitive Wyoming market prices.

New Mine Opportunities

A word here must be said about the potential for the Montco Mine in the Colstrip-Ashland area of Montana. It appears that this mine, if in fact it

were to open, would be competitive with the Absaloka and Big Sky mines of the Colstrip area, but have a higher break-even price than those of the Gillette area. Engineering estimates of the break-even price would bring the Montco Mine in at about $8.00/ton mine-mouth; however, the coals are of poor quality and have a lower BTU than other Montana mines. Planning for a 12 mtpy Montco facility could in fact add considerable more overcapacity to the region than it already has, especially in the already highly competitive, medium BTU coal market.

Shell's CX Ranch mine site in the Sheridan area has been abandoned, at least temporarily. Here high BTU coal has a relatively high break-even mine price and development has been shelved given the weak coal market and large overcapacity in the region. In the distant future, however, this facility could be competitive with Decker and Spring Creek coals and add a capacity of 8 mtpy.

New coal mines in the Wyoming portion of Powder River Basin are also possible beyond the year 2000. The next generation of Wyoming projects will most likely be characterized by very large production capacity, ranging from 6-20 mtpy with a low BTU content (in the range of 8100-8400 BTU/lb), and a break-even price of between $4.50-$8.00/ton mine-mouth. Again, characteristics such as these will continue to be competitive with Montana producers.

Recent Wyoming Developments

In order to be able to compare Montana-Wyoming coal market conditions, it might be useful to look at some recent Wyoming developments that may in fact portend the Montana market. Wyoming's Powder River Basin now has 19 surface mines with the addition of Rochelle in 1985 and Antelope in 1986. In 1985 Wyoming production increased by 9 million tons or 7%, with part of that increase coming in the Powder River Basin. However, there are six reported

decreases in production within Powder River Basin mines, or approximately one third of the total mines in the basin reported at 1.5 mtpy cumulative decline.

The other characteristic of the Wyoming coal mining industry, one which is being duplicated in Montana and which has obviously affected the economic impact of coal mining in the state, is that work force lay-offs continue and grew more severe during 1985 and the early part of 1986. At the same time productivity is increasing in mines overall, as Wyoming high-cost underground mining declines or is phased out, and surface mining becomes more efficient. This efficiency trend is also characteristic of Montana mines.

An interesting coal development in 1986 in Wyoming was the Northern Indiana Public Service cancelation and penalty payment of a long-term contract with Carbon County Coal Company. It cost NIPSCO $181 million in penalties to buy out the contract. NIPSCO then turned around and bought spot coal from the same mine for $15.00/ton less in delivered price. It will make up its penalty by purchasing only 12 million tons of coal at the lower price. Such runaway adjustment factors in long-term coal contracts at some mines have led to enormous concern by utilities, and has moved them toward contract cancelation or reduced coal acceptance, as they make up their differential coal needs in the spot market, and sign short-term rather than long-term contracts. This is a strategy for holding fuel costs down and maintaining electric rates at expected low inflation levels.

A number of spot and short-terms contracts have been signed in the past six months in the Wyoming portion of the basin. They include a five-year (1986-1991) contract between the Black Thunder Mine and Wisconsin Power and Light for 11 million tons of coal shipped under a new contract with the C&NW Railway. NERCO's Antelope Mine has signed a new contact with Platte River Power Authority for 35,000 tons of coal per month (420,000 tons per year) with

a new transportation contract with the Burlington Northern Railway. Platte River Power Authority is currently taking Black Thunder coal at 90 cents/MMBTU delivered. The Lower Colorado River Authority has contracted with Exxon's Caballo Mine for a six-month 1986 contract at 135,000 tons per month, or 810,000 tons for the year. Thunder Basin Coal has contracted with the city of Austin for a six-month 1986 contract of 70,000 tons per month, or 420,000 tons for the year. And lastly, the Chicago and Northwestern has agreed to buy into Burlington Northern's 10-mile line extension into the Gillette area, providing more competitive transportation for the three or four coal mines served exclusively before this year by Burlington Northern. This portends the potential for a stronger move by Wyoming producers to expand their markets and assure contract renewals.

Other contract adjustments in Wyoming are interesting to note. For example, Exxon's Rawhide Mine has renegotiated their contract with Iowa Public Service for a substantial FOB mine price reduction. Coal Week reports that Iowa Public Service received coal from the Rawhide Mine at $23.29/ton delivered, and the first quarter 1986 tariff for coal transport lists charges at $14.18/ton. That provides a mine price of $9.11/ton for the Rawhide Mine. The new contract for 1.8 mtpy provides a mine price of $6.84/ton, or a $2.27/ton reduction for future contract deliveries. This price cutting is a move in the opposite direction of that normally anticipated by the coal industry through the provisions of price escalators in contracts.

Another recent coal-related activity effecting Wyoming was the U.S. House Committee repeal of the 1978 Power Plant and Industrial Fuel Use Act withdrawing oil and gas as a utility fuel. In the wake of this event San Antonio City Public Service shut down its coal-fired Deely unit and is replacing it with gas-fired turbines at a fuel cost of $1.40/MMBTU. The Deely unit received coal from Wyoming's Cordero Mine under long-term contract at $1.73/MMBTU, and

on the spot market from Cordero at $1.51/MMBTU. The availability of gas and its anticipated usage as a utility fuel once again is providing substantial economic benefits to utilities that have gas-fired capability in reserve. Again, Wisconsin Power and Light is converting its Blackhawk plant from coal to natural gas in order to meet Wisconsin's new air pollution regulations. It is a small peaking unit, but it again conforms with a move to replace coal with cheaper fuels where possible.

In addition, Dairyland Power of Wisconsin has won a court order to renegotiate its contract with AMAX's Belle Ayr and Eagle Butte mines. Dairyland has been receiving coal from these Wyoming mines at $33.35/ton, and AMAX argued that because Dairyland was not in any financial difficulty they could afford to pay the contracted coal price. The court ruled, however, that the contract must be renegotiated. Lastly, Nebraska Public Power has renegotiated contracts with Arco mines in the Powder River Basin for a $2.00/ton reduction on nearly 40 million tons of contracted coal over the next 10 years. It is clear that spot pricing in the Powder River Basin is very close to covering only variable costs, as the Cordero and Rochelle mine contracts with Wisconsin Power and Light signed in 1986 suggest.

Recent Montana and National Developments

In Montana we are seeing the same trends as in Wyoming. In the spring of 1986 Western Energy's Rosebud Mine laid-off 116 miners or approximately one-third of the work force. They cited abundant available hydro, low oil prices and reduced coal demand as reasons for their cut-backs. Their expected recall is for August or September of 1986 if demand warrants it. However, Western Energy estimates that their 1986 production will only fall from 13.9 million tons in 1985 to 12.6 million tons in 1986, apparently as a result of the reduced demand by the parent Montana Power Company. A one-third reduction in

the mining force will result in only a 10% reduction in production, thereby dramatically increasing productivity and profits for this year.

An authoritative national outlook for coal is usually provided by the Department of Energy's Energy Information Administration. Their forecast suggests that total demand for electric power in the U.S. by the year 1995 will rise to 882 million tons of coal, from 693 million tons for 1985. Supply potential by 1995, however, will be about 110 million tons greater than nationwide demand for coal for all uses. Within their forecast, EIA projects a demand of 248 million tons of Northern Great Plains coal (Wyoming, Montana, North Dakota) by 1995. This projection would suggest a 3% growth rate for utility coal in the Powder River Basin, clearly at the high end of the spectrum. Historically, EIA has always provided the higher end of the coal forecast range when comparing national projections.

With a 248 million ton 1995 Northern Great Plains potential, the Powder River Basin of Wyoming and Montana might be expected to produce 210-215 million tons of coal. However, a very large overcapacity in the nation's potential for coal mining exists today and could get larger. A 110 mtpy excess national capacity will surely depress prices short-term, and act to discourage new mine development. What we might expect to see, however, is the closing of high-cost mines, shake-out of a large number of marginal coal mining operations, and a reduction of costs nationwide. Mid-continent plants that convert both eastern and western low-sulfur coals are keeping the eastern spot market prices at levels between $25.00-$30.00/ton FOB. In the Powder River Basin Wyoming spot market prices are falling to between $4.00-$5.00/ton FOB for the reasons indicated above.

In a recent report Scott Atkinson of the University of Wyoming and Joe Kerkvliet of New Mexico State University have argued that the 1980 Staggers

Act has failed to encourage competitive coal haulage rates in the west. The price of coal transport substantially exceeds the long run marginal costs of hauling that coal, and coal consumers are being charged a much higher mark up over cost than for the haulage of other commodities.

With respect to future production, it appears that federal coal leases will not be effected by the "due diligence" clause of the ammendments to the Leasing Act. There is a substantial move in the Congress to either ignore, or to adjust due diligence clauses, which require minimum production on certain older leases by fixed dates or the leases revert back to the federal government. Under such due diligence requirements, either unneeded capacity would have to be added to the nation's potential coal production capability, causing further problems in price cutting and coal market weakening, or the leases would revert to the federal government. Elimination of the diligence requirement will allow a more rational planning of future coal mines, but also suggests that there is a very large amount of unneeded coal currently under lease, especially under federal lease in the Powder River Basin.

MONTANA'S WINDOW OF OPPORTUNITY

Table I reports Montana coal production by mine for the period 1980-1985. Since 1982, total Montana coal mine production has increased modestly but steadily through calendar year 1985. Although the trend has been upward from 27.8 million tons in 1982 to 33.8 million tons in 1985, each mine has had its own up or down history.

Rosebud and Decker have grown steadily and substantially (15%-30%) over the last four years in terms of their total production, even with Decker's loss of the Lower Colorado River Authority contract for the first three quarters of the 1986 fiscal year. On the other hand, Peabody's Big Sky Mine and Westmoreland's Absaloka Mine have each declined 600,000 tons per year when

TABLE I: Montana Coal Production 1980-1985

Mine Name	County & Town	1980	1981	1982	1983	1984	1985
Rosebud Mine (Western Energy)	Rosebud County Colstrip	10,401,972	10,352,966	9,424,857	9,544,062	11,907,098	12,264,599
Decker Mine (Decker Coal Co.)	Big Horn County Decker	11,193,302	10,681,739	9,799,890	10,348,817	10,296,833	11,534,105
Big Sky Mine (Peabody Coal Co.)	Rosebud County Colstrip	2,964,359	3,193,570	2,891,428	2,571,861	3,951,315	3,338,990
Spring Creek Mine (NERCO)	Big Horn County Decker	95,634	4,368,855	1,352,181	2,102,606	2,961,075	2,837,972
Absaloka Mine (Westmoreland)	Big Horn County Hardin	4,905,262	4,450,296	4,158,578	3,868,844	3,602,179	3,093,241
Savage Strip Mine (Knife River Coal Co.)	Richland County Savage	305,578	204,492	171,556	206,543	229,119	213,533
Others (Coal Creek Mine, Brophy #2 Mine, Storm King Mine, PM Surface Strip)		91,479	79,711	39,811	17,551	16,380	24,651
Totals		29,957,586	33,331,659	27,838,301	28,660,284	32,964,049	33,807,091

comparing 1984 and 1985. NERCO's Spring Creek Mine has had steady production in the last two years. This increasing trend of total production has been forecast to continue through the near and mid-term by Duffield and Silverman (1985), and starting with the first Montana Coal Group forecast in 1976 we have accurately projected Montana and Northern Great Plains production to within ±5% of their values. Of particular note in the Absaloka Mine is that Westmoreland's production of Indian coal has fallen 500,000 tons between 1984 and 1985. Taxes on Indian coals reside in escrow until the settlement of the legal situation. Production at the Absaloka Mine on which taxes are paid to Montana has remained steady at about 1.1 million tons for 1984 and 1985.

The anticipated 1986 production rise in Montana will be offset by the Rosebud Mine's recent lay-offs and cutback in production, which is estimated to result in 1.3 million fewer tons of production for the year. A restimulated economy and upswing in the levels of coal contract shipments, as well as possible spot market purchases, might provide enough stimulation to increase 1986 total coal production in the state; but again, by only a modest amount.

For the 1985 calendar year, the state has received severance tax credit requests from Montana operators for a total of $1.1 million, which we have calculated to be approximately equivalent to 1.0 million tons of production at an average tax credit of about $1.00/ton under HB607. Seventy-three percent of that tax credit is at the Decker Mine where $814,000 in 1985 credit is equivalent to about 600,000 tons of coal. Peabody's Big Sky Mine has applied for $194,000 annual credit equivalent to 240,000 tons of coal, and Western Energy seeks $107,000 total for 150,000 tons of coal. The balance is distributed between Westmoreland ($12,000) and Knife River ($2,000) in tax credit relief.

The relevant question with regard to these severance tax credit applications, is whether or not the additional tonnage would have been forthcoming

TABLE II: Fiscal Year 1986

(June, September, December, 1985 and March 1986)

Coal Mines Severance Tax

	Tons Mined	Less Deductions	Net Tons	Total Tax	*Less Tax Credit	P & I	Total Tax, Penalty & Int.
Decker Coal (Big Horn County)	11,802,540	20,000	11,782,540	$38,949,392.00	($203,630.00)	-0-	$38,745,762.00
Knife River (Richland County)	205,930	20,000	185,930	388,619.54	(621.21)	-0-	387,998.33
Peabody Coal (Rosebud County)	3,000,533	20,000	2,980,533	7,271,628.00	(48,549.75)	-0-	7,223,078.25
Spring Creek Coal (Big Horn County)	2,931,618	20,000	2,911,618	9,621,874.00		-0-	9,621,874.00
Western Energy (Rosebud County)	12,225,464	20,000	12,205,464	25,983,796.22	(26,788.67)	-0-	25,957,007.55
Westmoreland Res. (Big Horn County)	1,047,943	-0-	1,047,943	2,256,457.78	(3,127.00)	-0-	2,253,330.78
P & M Coal (Musselshell County)	-0-	-0-	-0-	-0-	-0-	-0-	-0-
Storm King Coal (Musselshell County)	-0-	-0-	-0-	-0-	-0-	-0-	-0-
TOTALS	31,214,028	100,000	31,114,028	$84,471,767.54	($282,716.63)	-0-	$84,189,050.91

Coal Dealers Tax: 9.99

Total Coal Severance & Dealers: $84,189,060.90

*15-35-201 "New Coal Production Incentive Tax Credit Act of 1985"

without severance tax relief (see Appendix A). A complete evaluation of the "window of opportunity" would have to consider the specific purchase increases and the alternative opportunities for coal purchase that might have also satisfied customer needs. Lacking the confidential data to provide such an analysis inhibits the ability to decide whether or not the approximately one million tons of coal under tax credit application is truly a response to HB607. Table II provides the coal mine severance tax credit data for FY86 (table shows quarterly payment or 25% of the total $1.1 million credit). Decker's loss of slightly over a million tons of coal in the Lower Colorado River Authority 1985 contract (May-December), may have enable it to increase production by nearly 600,000 tons of coal that qualified for tax credit status under a different contract.

Severance tax collections for FY86 fell $7.5 million from their FY85 level, even though coal production increased for the year by about 850,000 tons. The $84.5 million of coal severance tax collections is far below the projections made by the 1985 Legislature of $104 million and $2.5 million less than the March 1986 special session estimate by the Legislature. That revenue loss can be accounted for by two significant occurrences: 1) first, is the loss of a high price contract by Decker Mines with the Lower Colorado River Authority, which would have provided approximately $1-$2 million more to the cash flow during calendar year 1985; and 2) the concomitant lowering of the average contact sales price in Montana, estimated to have fallen from about $10.50/ton to around $9.25/ton by the Office of Budget and Program Planning. Although Decker increased production during 1984, the loss of its very high priced coal contract, estimated to be approximately $30.00/ton FOB, was not fully compensated by the new tonnage and prices that the mine achieved in FY86. In addition, the continuing weakness of coal prices will serve to

offset somewhat the expected increase in total coal production in 1986, so that perhaps only modest gains in coal severance revenues for the 1987 fiscal year can be expected.

The pressure is on, however, to renegotiate high priced contracts and bring them more line with current conditions. That trend can only serve as a note of caution in projecting coal severance revenues from future production. Based on tax revenues for FY86, the average severance tax per ton of coal for each of the mines are as follows: Decker coal, $3.30/ton; Spring Creek coal, $3.30/ton; Peabody coal, $2.44/ton; Westmoreland Resources, $2.15/ton; and Western Energy, $2.13/ton. As noted above, the 1985 tax rebate request of about $1.1 million conforms to a weighted average of about $1.00/ton rebate for coal qualifying under HB607. This qualifying production is approximately 3% of total production.

Hard times are affecting the coal industry everywhere, including Montana, and the intense competitive position in the Powder River Basin with respect to coals sales continues to keep pressure on Montana for cost cutting and greater coal mining efficiencies. The general benefits of a slowly, rather than rapidly, expanding industry, one finely tuned to low-cost production because of its competitive situation, will not provide an explosive job market, nor a rapidly increasing boom to the local and state economy. The state must learn to live with slow growth expectations for the Montana coal industry, and reduction of the severance tax by itself cannot provide opportunities that will significantly increase overall benefits to all Montana citizens. Given the limited coal sales opportunities that are available over the next 10 years, it is more than likely that over the long term a permanent reduction of the coal severance tax will be a net cash flow loser to the Montana treasury.

The loss in revenues that would accompany a severance tax cut with respect to the contracts that are expiring by 1995 is presented on Table F5 of

our 1985 study. This table suggests that in all reasonably expected cases, except where Wyoming FOB mine prices are $5.00/ton and the Montana base price is $10.50/ton, the net tax loss due to a 50% tax cut would be in the neighborhood of $15 million per year to the state. Table S-2 from the 1985 Duffield-Silverman report shows the annual changes in new production at different utility growth rates and the impact of a price reduction of $1.00/ton. Significant new production tonnages for a $1.00 change in price only occur with 3% growth rates in 1995 and 2% growth rates or higher in the year 2000. At the same time a $1.00-$2.00 tax reduction provides net revenue losses in every single year regardless of the incremental growth in new production, showing that production growth cannot make up for the revenue losses sustained by reducing the severance tax (Table 24).

In addition, the incremental new production that is available for a $1.00-$2.00/ton price change is so small as to be almost insignificant compared to other factors that would enhance Montana's economy and society. For example, the increased production at expected growth rates could easily be handled with the reduced work force that is currently operating in the Montana mines. Therefore net social and economic benefits as measured by mine employment and the multiplier effect, as well as tax revenues to the state of Montana, would decline over the next 10-15 years with reinstitution of HB607 on a permanent basis.

Table F-5

Certainty Case Summary of Annual Tax Revenue Loss on Montana Coal Contracts Expiring by 1995

Montana FOB Price	Wyoming FOB Mine Price ($/ton) 5.00	6.00	7.00	8.00
A. Quantity of Renewed Montana Contracts (mtpy)				
10.50	2.0	11.5	13.8	13.8
9.50	11.5	13.8	13.8	14.3
8.50	13.5	13.5	14.3	14.3
B. Tax Revenue with No Tax Cut (million $/yr)				
10.50	4.4	25.4	30.4	30.4
9.50	23.0	27.6	27.6	28.6
8.50	24.2	24.2	25.6	25.6
C. Tax Revenue with 50% Cut (million $/yr)				
cut to 9.50	11.5	13.8	13.8	14.3
cut to 8.50	12.2	12.2	12.9	12.9
D. Net Loss Due to Tax Cut (million $/yr)				
Base 10.50	(7.1)	11.6	16.6	16.1
Base 9.50	10.8	15.4	14.7	15.7

Table S-2

SUMMARY

Base Case Montana Coal Production Forecast
(million tons per year)

Year:	1990			1995			2000		
Electric Growth Rate:	1%	2%	3%	1%	2%	3%	1%	2%	3%
Total Production	38	42	43	42	46	65	48	63	85
New Production	6	9	11	10	14	32	16	31	53
[a]Increase for $1/ton Price Reduction	.9	1.5	1.3	1.6	1.2	6.9	1.0	5.7	13.5

Note: [a]Increase is based on average of 9.50 and 10.50 Montana FOB and 6.00, 7.70 Wyoming FOB cases.

Table 24

Annual Tax Revenue Changes
for Severance Tax Reductions

Year	1990			1995			2000		
Electric Growth	1%	2%	3%	1%	2%	3%	1%	2%	3%
New Production (mpty)	6.0	9.0	11.0	10.0	14.0	32.0	16.0	31.0	53.0
Change for $1 Price Reduction (mpty)	.9	1.5	1.3	1.6	1.2	6.9	1.0	5.7	13.5
Change for $2 Price Reduction (mtpy)	3.1	3.2	2.4	3.3	2.4	12.9	5.6	10.2	27.2
Change for $1.50 Price Reduction (mtpy)	2.0	2.4	1.9	2.5	1.8	9.9	3.3	8.0	20.4
	Revenue Change (million $/year)								
A. $1 Tax Reduction									
Loss on New Base	6.0	9.0	11.0	10.0	14.0	32.0	16.0	31.0	53.0
Gain on Change	1.8	3.0	2.6	3.2	2.4	13.8	2.0	11.4	27.0
Net Loss	4.2	6.0	8.4	6.8	11.6	18.2	14.0	19.6	26.0
B. $2 Tax Reduction									
Loss on New Base	12.0	18.0	22.0	20.0	28.0	64.0	32.0	62.0	106.0
Gain on Change	3.1	3.2	2.4	3.3	2.4	12.9	5.6	10.2	27.2
Net Loss	8.9	14.8	20.4	16.7	25.6	51.1	26.4	51.8	78.8
C. 50% Tax Change (1.50)									
Loss on New Base	9.0	13.5	16.5	15.0	21.0	48.0	24.0	46.5	79.5
Gain on Change	3.0	3.6	2.9	3.8	2.7	14.9	5.0	12.0	30.6
Net Loss	6.0	9.9	13.6	11.2	18.3	33.1	19.0	34.5	48.9

APPENDIX A

PETER KIEWIT, THE DECKER MINE, AND THE WINDOW OF OPPORTUNITY

During the period of July 24 to 29, 1986, while attempting to provide a revised edited copy of the coal severance update report for the Coal Tax Oversight Committee, we had occasion to again review the relevant atatistics with regard to the 1985 response to HB607. I have especially reviewed the information related to Peter Kiewit's Decker Coal Mine, as that particular mine has approximately 600,000 to 700,000 tons of coal for tax credit valued at about $815,000. The following is the story that I have been able to piece together with regard to the Decker Mine, Peter Kiewit operations, Commonwealth Edison and the "window of opportunity."

Commonwealth Edison of Chicago has large coal contracts with Peter Kiewit mines at Decker, Montana, and the Big Horn Mine in Wyoming. The base production and consumption tonnage for the Decker Mine for 1983-84 under HB607 is 3.5 mtpy and 3.9 mtpy respectively. A contract with the Big Horn Mine provides Commonwealth Edison with about 3 million tons of coal per year. One interesting provision in the Big Horn contract is that Peter Kiewit may substitute Decker coal at the same delivered price as Big Horn coal for any or all tonnages in the Big Horn contract. The reverse is not applicable however; that is, Decker cannot pass through Big Horn coal in service of their tonnage requirements.

The Big Horn contracts with Commonwealth Edison are due to expire in 1988 and a review of the last six years of production at the Big Horn Mine indicates a continuing decline to only two million tons of production in 1985 from a high of four million tons in 1980. Clearly, Peter Kiewit is phasing the Big Horn coal mine down or out of production on the basis of perhaps high mining

costs, estimated to be around $14.00/ton at break-even, and high reclamation costs when compared to Powder River Basin mines. The Decker Mine, however, has a 20-year contract with Commonwealth Edison that expires in 1997. Since the 1983-84 base year, Decker coal has moved to Commonwealth Edison under the terms of the Big Horn contract, so that in calender in 1985, Decker provided one million tons of coal, or one-third of the contract requirements, for the Big Horn mine. A significant portion of that one million tons, about 600,000 tons, qualifies for incremental production for the Decker Mine according to the Montana Department of Revenue. Inasmuch as the Big Horn contract does not specify the amount of Decker coal that can be substituted, the Department of Revenue is apparently treating the contract provision as a spot market purchase from Decker anytime Big Horn chooses to substitute Decker coal in its Commonwealth Edison contract.

This interpretation seems to make sense, inasmuch as Peter Kiewit can vary the amount that it takes from Decker year to year in order to service the Big Horn contract. It is clear that Kiewit's apparent desire to either not renew the Commonwealth Edison contract with the Big Horn mine after 1988, or renew under current substitution terms, or perhaps to close the Big Horn Mine, means that the 3 mtpy contract previously signed with Big Horn will be completely or mainly shifted to the Decker mine in 1989. The principles in this activity are significant gainers from this contract arrangement whereas the state of Montana, with respect to tax collections, is left with less tax revenue than before HB607.

Apparently the shift of the Big Horn contract to Decker Mine production was long planned by Peter Kiewit and perhaps anticipated by Commonwealth Edison. Coal from the Big Horn Mine is delivered to Commonwealth Edison at prices from 10-15 cents/MMBTU higher than even better coal from Decker. Decker coal is slightly higher in BTU's and slightly lower in sulfur content.

The Big Horn contract allows Decker coal received under that contract to be sold at the higher Big Horn price. Therefore, by providing Decker coal under the Big Horn contract, Peter Kiewit makes about $2.50/ton more profit from its additional Decker coal operations. Commonwealth Edison is satisfied in that for the price of Big Horn coal they receive coal that has a slightly higher BTU content and very slightly lower sulfur content. In effect, its a premium, for the price and coal character they had already contracted for from Big Horn. The only loser in the operation seems to be the state of Montana, for the coal that is shifting to Decker under the Big Horn contract, and will probably be shifted completly in 1989, would be coming to Montana in any case because comparable coals are not available in the Powder River Basin or elsewhere at competitive prices. Only Wyoming's Black Thunder coals and NERCO's Spring Creek Mine might be able to meet the high BTU, low sulfur content needs of Commonwealth Edison, but apparently those coals could not arrive at Commonwealth Edison plants at Decker prices of about $55.00/ton on average.

The 2 to 3 mtpy of additional coal production from Decker for C.E. will now be taxed at the reduced severance tax rate. At a production level of 3 mtpy this represents a loss of approximately $4 million/year over the next 12 years or about $48 million over the life of the current Decker/Commonwealth contract. In the first substantial example of the operation of the "window of opportunity," Peter Kiewit has taken an interesting advantage in the law to increase its profits by approximately 10% on every ton of coal mined at Decker for the incremental C.E. contract, while at the same time the state of Montana has lost $3 to $4 million/year of severance tax income.

Although Commonwealth Edison has been supplied over short periods with small amounts of Decker tonnage under the Big Horn contract previously, it was only through Decker's escape from the Lower Colorado River Authority contract

that called for shipment of 1.9 mtpy to Austin, Texas, that gave the Decker Mines the capacity to service the increase in the Commonwealth Edison contract without substantially increasing the capital/labor investment in the Decker mines. When Peter Kiewit refused to renegotiate the LCRA contract to bring it more in line with coals the utility was receiving from Wyoming producers, perhaps Montana lost that 2 million tons of production in order for Peter Kiewit to significantly increase profits on the Commonwealth Edison contract. Given the very large profit margins that Decker makes on coal, anywhere from $15 to $25/ton if their breakeven costs are around $7.50/ton for West Decker and $10/ton for East Decker, it is hard to understand why they chose contract elimination rather than mine expansion in order to capture the windfall of the Commonwealth Edison/Big Horn contract relationship. Decker appears to have enough reserves to service both Lower Colorado River Authority and the Commonwealth Edison addition, but for corporate reasons unknown at this time, they chose in effect to exchange the contracts between the LCRA and Big Horn/Decker with Commonwealth Edison in order to increase profit margins on approximately the same tonnage.

In summary, therefore, it appears that under the terms of HB607, Peter Kiewit has been able to restructure coal mining from the Big Horn Mine in Wyoming to the Decker Mine in Montana in a way that will not increase, or slightly increase its Montana production (by adding 2 to 3 mtpy to CE, after the 2 mtpy loss of LCRA), but will reduce state tax revenues by $3 to $4 million/year, or $36-$48 million below what would have occurred without HB607 over the life of the Commonwealth Edison contract. At the same time, Peter Kiewit has given up a 2 mtpy contract where profits were between $25 and $30/ton, thereby depriving the state of Montana of a coal severance tax cash flow of about $6 million/year over the life of the LCRA contract. One might argue that HB607 has in fact reduced expected coal severance tax revenues to

the state of Montana in the first large contract adjustment to be executed under the act.

The other contracts recently signed or being discussed need to be briefly reviewed. NERCO's Spring Creek Mine anticipated sales to Detroit Edison are on a spot market basis and are subject to the vagories of demand and the marketplace. The hope is that this sale will provide 600,000 to 700,000 tons a year for some indefinite period. At first glance it appeared reasonable that NERCO's Spring Creek Mine was a supply alternative to the capacity limited Decker Mine. However, in the last few weeks, Detroit Edison has announced it is displacing 400,000 tons of Decker coal at its Monroe Plant (the displaced coal to be used elsewhere) and purchasing 750,000 tons of spot eastern Kentucky high BTU (12,500-13,000), low-sulfur coal for the rest of 1986. The eastern Kentucky coal is now competitive with high BTU, low sulfur western coal because of reduced FOB mine prices, estimated to be $26/ton, and substantially reduced transportation costs on the C & O Railroad. Aggressive reduction in transportation costs and the slack coal market has opened some Detroit Edison plants to high quality eastern Kentucky coal, at least for the near term, and makes the NERCO contract appears less likely.

AEM Corporation is a small contract with Western Energy and is restricted to the Colstrip Mine because of plant location and not severance tax reduction. Western Energy/Northern States Power five-year renewal, from 1995 to the year 2000, does expand the upper limit of annual contract to 5.5 mtpy, but does not raise the minimum; and therefore, it is not known whether or not Northern States Power will choose to increase their purchase from Western Energy. This contract cannot be considered as a direct response to a lower coal severance tax.

The one contract that is in the process of being negotiated at this time, and may be signed momentarily, is Southern Minnesota Power with Westmoreland's Absaroka Mine for its share of Sherco #3. It is a 1 mtpy contract beginning in 1988, and this particular purchase might well be secured by the additional price advantage that the severance tax provides against comparable BTU coals in Wyoming.